

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents  
 United States Patent and Trademark  
 Office  
 Box PCT  
 Washington, D.C.20231  
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

<b>Date of mailing</b> (day/month/year) 06 September 2000 (06.09.00)	<b>Applicant's or agent's file reference</b> JHT-0003
<b>International application No.</b> PCT/US00/01007	<b>Priority date</b> (day/month/year) 15 January 1999 (15.01.99)
<b>International filing date</b> (day/month/year) 14 January 2000 (14.01.00)	
<b>Applicant</b> HANTZER, Sylvain, S. et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

14 August 2000 (14.08.00)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<b>The International Bureau of WIPO</b> 34, chemin des Colombettes 1211 Geneva 20, Switzerland	<b>Authorized officer</b>  Manu Berrod
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

## INTERNATIONAL SEARCH REPORT

International application N .

PCT/US00/01007

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : C10G 71/00, 47/02, 47/04, 11/00, 11/02, 11/04

US CL : 208/18, 108, 112, 113, 121, 123, 124, 308

According to International Patent Classification (IPC) r to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 208/18, 108, 112, 113, 121, 123, 124, 308

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONEElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
NONE**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 3,850,746 A (ROBSON) 26 November 1974, col. 1, line 12 to col. 36, line 66.	1-19
A	US 4,808,563 A (VELENYI) 28 February 1989, col. 3, line 55 to col. 4, line 63.	4-12, 18, 19

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*E* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

26 MARCH 2000

Date of mailing of the international search report

18 APR 2000

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

MARK BELL

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## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 08 DEC 2000

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15

Applicant's or agent's file reference JHT-0003	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/01007	International filing date (day/month/year) 14 JANUARY 2000	Priority date (day/month/year) 15 JANUARY 1999
International Patent Classification (IPC) or national classification and IPC Please See Supplemental Sheet.		
Applicant EXXONMOBIL RESEARCH AND ENGINEERING COMPANY		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 0 sheets.

## 3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 14 AUGUST 2000	Date of completion of this report 29 SEPTEMBER 2000
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer MARK BELL Telephone No. (703) 308-0661 DEBORAH THOMAS PARALEGAL SPECIALIST

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/01007

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

☒ the international application as originally filed☒ the description:

pages 1-60 , as originally filed  
pages NONE , filed with the demand  
pages NONE , filed with the letter of \_\_\_\_\_

☒ the claims:

pages 61-65 , as originally filed  
pages NONE , as amended (together with any statement) under Article 19  
pages NONE , filed with the demand  
pages NONE , filed with the letter of \_\_\_\_\_

☒ the drawings:

pages 1-2 , as originally filed  
pages NONE , filed with the demand  
pages NONE , filed with the letter of \_\_\_\_\_

☒ the sequence listing part of the description:

pages NONE , as originally filed  
pages NONE , filed with the demand  
pages NONE , filed with the letter of \_\_\_\_\_

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.  
These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in printed form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages NONE  
☒ the claims, Nos. NONE  
☒ the drawings, sheets/fig NONE

5. ☐ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\*Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/01007

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. statement**

Novelty (N)

Claims	<u>1-19</u>	YES
Claims	<u>NONE</u>	NO

Inventive Step (IS)

Claims	<u>1-19</u>	YES
Claims	<u>NONE</u>	NO

Industrial Applicability (IA)

Claims	<u>1-19</u>	YES
Claims	<u>NONE</u>	NO

**2. citations and explanations (Rule 70.7)**

Claims 1-19 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest the claimed process for preparing a lubricating oil basestock containing at least about 90% saturates, comprising hydrotreating a feedstock in the presence of a hydrotreating catalyst under hydrotreating conditions, and fractionating the hydrotreated feedstock, wherein the hydrotreating catalyst is a bulk metal catalyst comprising non-noble Group VIII metal molybdate in which at least a portion but less than all of the molybdate is replaced by tungsten.

Velenyi elementally teaches the bulk metal catalyst (i.e., the same components--Ni, Mo, W, etc.). However, Velenyi teaches ranges of the catalyst components that are not commensurate with those respectively claimed. Also, the catalyst of Velenyi is useful for the conversion of methane to higher order hydrocarbons.

----- NEW CITATIONS -----  
NONE

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/01007

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

**CLASSIFICATION:**

The International Patent Classification (IPC) and/or the National classification are as listed below:

IPC(7): C10G 71/00, 47/02, 47/04, 11/00, 11/02, 11/04 and US Cl.: 208/18, 108, 112, 113, 121, 123, 124, 308

Serial No.: 09/869,985  
Reply to Office Action of: June 10, 2003  
Atty. Docket No.: GJH-0006

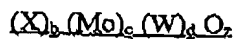
LISTING OF CLAIMS

Single reaction stage

The submitted listing of claims will replace all prior versions, and listings, of claims in the application. All claims are listed with the status in parentheses immediately following the claim number. Claims 1, 2, 3, 6, 10 and 11 are currently amended; claims 4 and 9 are cancelled.

1. (CURRENTLY AMENDED) A process for producing a hydrocrackate having a relatively low sulfur and nitrogen content, which process comprises:

B1  
reacting a feedstream in a single reaction stage, in the presence of a hydrogen treat gas, as it passes through two or more catalyst beds wherein the upstream most catalyst bed is comprised of a bulk multimetallic catalyst comprised of at least one Group VIII non-noble metals and at least two Group VIB noble metals wherein the ratio of Group VIB metals to Group VIII non-noble metals is about 10:1 to about 1:10, of a trimetallic catalyst represented by the formula:

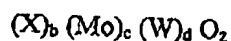


wherein X is a Group VIII non-noble metal, the molar ratio of  $b:(c+d)$  is 0.5/1 to 3/1, and the downstream most is comprised of a hydrocracking catalyst, which single reaction stage is operated at a temperature of about 300 to 450°C, and hydrogen pressures from about 85 to 200 bar (1250-2915 psig), thereby resulting in a hydrocrackate being substantially lower in sulfur and nitrogen than the feedstock.

2. (CURRENTLY AMENDED) The process of claim 1 wherein Group VIII non-noble metal is selected from Ni and Co and the Group VIB metals are selected from Mo and W.
3. (CURRENTLY AMENDED) The process of claim 1 wherein two Group VIB metals are present as Mo and W and the ratio of Mo to W is about (9:1 to about 1:9).
4. (CURRENTLY CANCELLED)

Serial No.: 09/869,985  
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Atty. Docket No.: GJH-0006

5. (ORIGINAL) The process of claim 1 wherein the bulk multimetallic catalyst is amorphous and has a unique X-ray diffraction pattern showing crystalline peaks at  $d = 2.53$  Angstroms and  $d = 1.70$  Angstroms.
6. (CURRENTLY AMENDED) The process of claim 5 2 wherein the Group VIII non-noble metal is nickel.
7. (ORIGINAL) The process of claim 1 wherein the feedstock is hydrotreated in a first reaction stage containing one or more reaction zones and the effluent is hydrocracked in a second reaction stage, also containing one or more reaction zones.
8. (ORIGINAL) The process of claim 1 wherein the effluent from the hydrotreating stage is passed to a separation zone wherein the resulting bottoms are fed to the hydrocracking stage.
9. (CURRENTLY CANCELLED)
10. (CURRENTLY AMENDED) The process of claim 1 wherein the bulk multimetallic is represented by the formula:



wherein ~~X is a Group VIII non noble metal~~, and the has a molar ratio of  $b:(c+d)$  is ~~0.5/1 to 3/1~~, preferably of 0.75/1 to 1.5/1, more preferably 0.75/1 to 1.25/1.

11. (CURRENTLY AMENDED) The process of claim 3 1 wherein the molar ratio of  $c:d$  is preferably  $>0.01/1$ , more preferably  $>0.1/1$ , still more preferably 1/10 to 10/1, still more preferably 1/3 to 3/1, most preferably substantially equimolar amounts of Mo and W, e.g., 2/3 to 3/2; and  $z = [2b + 6(c+d)]/2$ .
12. (ORIGINAL) The process of claim 1 wherein the bulk multimetallic catalyst is essentially an amorphous material having a unique X-ray diffraction pattern showing crystalline peaks at  $d = 2.53$  Angstroms and  $d = 1.70$  Angstroms.